

consideration, without prejudice. Please cancel Claims 161 and 162 without prejudice.

Please amend the claims as follows:

124. (Three Times Amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide under conditions that provide for expression of the OB polypeptide *in vivo*, such OB polypeptide capable of modulating body weight and selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 2;
- b) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2;
- c) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2, having an N-terminal methionine;
- d) [c)] the amino acid sequence set out in SEQ ID NO: 4; [and]
- e)[d)] the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4; and
- f) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4, having an N-terminal methionine.

[d) variants, including allelic variants, analogs and fragments of any of subparts (a) through (d), capable of modulating body weight.]

132. (Twice Amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding a OB polypeptide variant under conditions that provide for expression of the OB variant polypeptide *in vivo*, such OB polypeptide variant capable of modulating body weight and selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 5;
- b) the amino acid sequence set out in amino acids 22-166 of SEQ ID NO: 5;
- c) the amino acid sequence set out in amino acids 22-166 of SEQ ID NO:

5, having an N-terminal methionine;

- d)[c)] the amino acid sequence set out in SEQ ID NO: 6; [and]
- e)[d)] the amino acid sequence set out in amino acids 22-166 of SEQ ID NO: 6; and
- f) the amino acid sequence set out in amino acids 22-166 of SEQ ID NO: 6, having an N-terminal methionine;

133. (Twice Amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide under conditions that provide for expression of the OB polypeptide *in vivo*, such OB polypeptide capable of modulating body weight wherein such [said] OB polypeptide has 83 percent or more amino acid [sequence] identity to the OB polypeptide amino acid sequence set out in SEQ ID NOS: 2, 4, 5, [or] 6, 23 or 25.

134. (Twice Amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding a variant of an OB polypeptide under conditions that provide for expression of the OB polypeptide *in vivo*, such OB polypeptide capable of modulating body weight and comprising amino acids 22-167 of SEQ ID NO:4 wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163 and 166 is substituted with:

- a) the amino acid present in SEQ ID NO:3 at the corresponding position;
- b) a conserved amino acid; or
- c) an alanine. [another amino acid.]

135. (Twice Amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding a variant of an OB polypeptide under conditions that provide for expression of the OB

polypeptide *in vivo*, such OB polypeptide capable of modulating body weight and comprising amino acids 22-166[7] of SEQ ID NO:6 wherein one or more amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162 and 165 is substituted with:

- a) the amino acid present in SEQ ID NO:5 at the corresponding position;
- b) a conserved amino acid; or
- c) an alanine. [another amino acid.]

136. (Amended) A method according to claim 163 [124] wherein said mammal is a mouse.

137. (Amended) A method according to claim 163 [124] wherein said mammal is a human.

139. (Twice Amended) A method according to claim 138 wherein said OB polypeptide is selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 2;
- b) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2;
- c) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2, having an N-terminal methionine;
- d)[c)] the amino acid sequence set out in SEQ ID NO: 4;
- e)[d)] the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4; and
- f) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4, having an N-terminal methionine.
- [e) variants, including allelic variants, analogs and fragments of any of subparts (a) through (d), capable of modulating body weight.]

140. (Twice Amended) A method according to claim 138 wherein said mammalian OB polypeptide is a variant selected from the group consisting of the amino acid sequence set forth in:

- a) SEQ ID NO: 5;
- b) amino acids 22-166 of SEQ ID NO: 5;
- c) amino acids 22-166 of SEQ ID NO: 5, having an N-terminal methionine;
- d)[c)] SEQ ID NO: 6; [and]
- e)[d)] amino acids 22-166 of SEQ ID NO: 6; and
- f) amino acids 22-166 of SEQ ID NO: 6, having an N-terminal methionine

141. (Twice Amended) A method of delivering DNA encoding an OB polypeptide capable of modulating body weight to a mammal comprising administering to said mammal a vector which comprises such OB encoding DNA operatively associated with an expression control sequence, under conditions that provide for expression of the OB polypeptide by the mammal, wherein said OB polypeptide has 83 percent or greater amino acid [sequence] identity to the OB polypeptide amino acid sequence set out in SEQ ID NOS: 2, 4, 5, or 6, 23 or 25.

142. (Twice Amended) A method of delivering DNA encoding an OB polypeptide capable of modulating body weight to a mammal comprising administering to said mammal a vector which comprises such OB encoding DNA operatively associated with an expression control sequence, under conditions that provide for expression of the OB polypeptide by the mammal, [wherein] said OB polypeptide comprising[es] amino acids 22-167 of SEQ ID NO:4 wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163 and 166 is substituted with:

- a) the amino acid present in SEQ ID NO:3 at the corresponding position;
- b) a conserved amino acid; or

c) an alanine. [another amino acid.]

143. (Twice Amended) A method of delivering DNA encoding an OB polypeptide capable of modulating body weight to a mammal comprising administering to said mammal a vector which comprises such OB encoding DNA operatively associated with an expression control sequence, under conditions that provide for expression of the OB polypeptide by the mammal, [wherein] said OB polypeptide comprising[es] amino acids 22-166[7] of SEQ ID NO:6 wherein one or more amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162 and 165 is substituted with:

- a) the amino acid present in SEQ ID NO:5 at the corresponding position;
- b) a conserved amino acid; or
- c) an alanine. [another amino acid.]

145. (Twice Amended) A method according to claim 144 wherein said OB polypeptide is selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 2;
- b) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2;
- d) the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 2, having an N-terminal methionine;
- d)[c)] the amino acid sequence set out in SEQ ID NO: 4;
- e)[d)] the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4; and
- f) the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 4, having an N-terminal methionine.
- [g) variants, including allelic variants, analogs and fragments of any of subparts (a) through (d), capable of modulating body weight.]

146. (Twice Amended) A method according to claim 144 wherein said mammalian OB polypeptide is a variant selected from the group consisting of the amino acid sequence set forth in:

- a) SEQ ID NO: 5;
- b) amino acids 22-166 of SEQ ID NO: 5;
- c) amino acids 22-166 of SEQ ID NO:5, having an N-terminal methionine;
- d)[c)] SEQ ID NO: 6; [and]
- e)[d)] amino acids 22-166 of SEQ ID NO: 6; and
- f) amino acids 22-166 of SEQ ID NO:6, having an N-terminal methionine.

147. (Twice Amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a DNA vector which vector comprises DNA encoding an OB polypeptide capable of modulating body weight operatively associated with an expression control sequence wherein said OB polypeptide has 83 percent or greater amino acid [sequence] identity to the OB polypeptide amino acid sequence set out in SEQ ID NOS: 2, 4, 5, [or] 6, 23 or 25.

148. (Twice Amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a DNA vector which vector comprises DNA encoding an OB polypeptide capable of modulating body weight operatively associated with an expression control sequence, [wherein] said OB polypeptide comprising[es] amino acids 22-167 of SEQ ID NO:4 wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163 and 166 is substituted with:

- a) the amino acid present in SEQ ID NO:3 at the corresponding position;
- b) a conserved amino acid; or
- c) an alanine. [another amino acid.]

149. (Twice Amended) A method of expressing an OB polypeptide in a mammal

comprising administering to said mammal a DNA vector which vector comprises DNA encoding an OB polypeptide capable of modulating body weight operatively associated with an expression control sequence, [wherein] said OB polypeptide comprising[es] amino acids 22-166[7] of SEQ ID NO:6 wherein one or more amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162 and 165 is substituted with:

- a) the amino acid present in SEQ ID NO:5 at the corresponding position;
- b) a conserved amino acid; or
- c) an alanine. [another amino acid.]

155. (Twice Amended) A method according to claim 154 wherein said OB polypeptide is selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 2;
- b) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2;
- c) the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 2, having an N-terminal methionine;
- d)[c)] the amino acid sequence set out in SEQ ID NO: 4;
- e)[d)] the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4 ; and
- f) the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 4, having an N-terminal methionine.
- [e) variants, including allelic variants, analogs and fragments of any of subparts (a) through (d), capable of modulating body weight.]

156. (Twice Amended) A method according to claim 154 wherein said mammalian OB polypeptide is a variant selected from the group consisting of the amino acid sequence set forth in:

- a) SEQ ID NO: 5;

- b) amino acids 22-166 of SEQ ID NO: 5;
- c) amino acids 22-166 of SEQ ID NO: 5, having an N-terminal methionine;
- d)[c)] SEQ ID NO: 6; [and]
- e)[d)] amino acids 22-166 of SEQ ID NO: 6; and
- f) amino acids 22-166 of SEQ ID NO: 6, having an N-terminal methionine.

157. (Twice Amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a mammalian cell comprising an expression vector which vector comprises DNA encoding an OB polypeptide capable of modulating body weight operatively associated with an expression control sequence, under conditions that provide for expression of the OB polypeptide by the mammal wherein said OB polypeptide has 83 percent or greater amino acid [sequence] identity to the OB polypeptide amino acid sequence set out in SEQ ID NOS: 2, 4, 5, [or] 6, 23 or 25.

158. (Twice Amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a mammalian cell comprising an expression vector which vector comprises DNA encoding an OB polypeptide capable of modulating body weight operatively associated with an expression control sequence, under conditions that provide for expression of the OB polypeptide by the mammal, [wherein] said OB polypeptide comprising[es] amino acids 22-167 of SEQ ID NO:4 wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163 and 166 is substituted with:

- a) the amino acid present in SEQ ID NO:3 at the corresponding position;
- b) a conserved amino acid; or
- c) an alanine. [another amino acid.]

159. (Twice Amended) A method of expressing an OB polypeptide in a mammal

comprising administering to said mammal a mammalian cell comprising an expression vector which vector comprises DNA encoding an OB polypeptide capable of modulating body weight operatively associated with an expression control sequence, under conditions that provide for expression of the OB polypeptide by the mammal, [wherein] said OB polypeptide comprising[es] amino acids 22-166[7] of SEQ ID NO:6 wherein one or more of amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162 and 165 is substituted with:

- a) the amino acid present in SEQ ID NO:5 at the corresponding position;
- b) a conserved amino acid; or
- c) an alanine. [another amino acid.]

Please add the following Claims:

--165. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide analog under conditions that provide for expression of the polypeptide analog *in vivo*, such polypeptide analog, capable of modulating body weight, comprising amino acids 22-167 of SEQ ID NOS: 2 or 4 wherein the polypeptide analog is selected from the group consisting of polypeptides wherein:

- (a) the serine residue at position 53 is substituted with glycine, alanine, valine, cysteine, methionine, or threonine;
- (b) the serine residue at position 98 is substituted with glycine, alanine, valine, cysteine, methionine, or threonine; and
- (c) the arginine residue at position number 92 is substituted with asparagine, lysine, histidine, glutamine, glutamic acid, aspartic acid, serine, threonine, methionine, or cysteine.

166. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB

polypeptide analog under conditions that provide for expression of the polypeptide analog *in vivo*, such polypeptide analog, capable of modulating body weight, having an amino acid sequence of SEQ ID NOS: 2 or 4, wherein the polypeptide analog is selected from the group consisting of polypeptides wherein:

- (a) one or more aspartic acid residues is substituted with glutamic acid;
- (b) one or more isoleucine residues is substituted with leucine;
- (c) one or more glycine or valine residues is substituted with alanine;
- (d) one or more arginine residues is substituted with histidine;
- (e) one or more tyrosine or phenylalanine residues is substituted with tryptophan;
- (f) one or more of residues 121 through 128 (according to the numbering of SEQ ID No:4) is substituted with glycine or alanine; and
- (g) one or more residues at positions 54 through 60 or 118 through 166 (according to the number of SEQ ID NO: 4) is substituted with lysine, glutamic acid, cysteine, or proline.

167. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide analog under conditions that provide for expression of the polypeptide analog *in vivo*, such polypeptide analog, capable of modulating body weight, comprising the amino acid sequences set out in amino acids 22-167 of SEQ ID Nos. 2 or 4 or in amino acids 22-166 of SEQ ID Nos. 5 or 6 and selected from the group consisting of polypeptides:

- (a) having a leucine-glutamic acid-lysine-arginine-glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 26) at the N-terminus;
- (b) having a glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 27) at the N-terminus;
- (c) having a leucine-glutamic acid-lysine-arginine sequence (SEQ ID NO: 28) at the N-terminus;
- (d) having a methionine-glycine-serine-serine-histidine-histidine-histidine-

histidine-histidine-histidine-serine-serine-glycine-leucine-valine-proline-arginine-glycine-serine-proline sequence (SEQ ID NO: 99) at the N-terminus; and

- (e) having a glycine-serine-proline sequence at the N-terminus.

168. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide analog under conditions that provide for expression of the polypeptide analog *in vivo*, such polypeptide analog, capable of modulating body weight, comprising amino acids 22-167 of SEQ ID NOS: 2 or 4, wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163, and 166 (according to the numbering of SEQ ID NO: 4 is substituted with another amino acid and wherein the polypeptide analog is selected from the group consisting of polypeptides:

- (a) having a methionine at the N-terminus
- (b) having a glycine-serine-histidine-methionine sequence (SEQ ID NO: 38) at the N-terminus;
- (c) having a methionine-glycine-serine-serine-histidine-histidine-histidine-histidine-histidine-serine-glycine-leucine-valine-proline-arginine-glycine-serine-histidine-methionine sequence (SEQ ID NO: 98) at the N-terminus;
- (d) having a leucine-glutamic acid-lysine-arginine-glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 26) at the N-terminus;
- (e) having a glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 27) at the N-terminus;
- (f) having a leucine-glutamic acid-lysine-arginine sequence (SEQ ID NO: 28) at the N-terminus;
- (g) having a methionine-glycine-serine-serine-histidine-histidine-histidine-histidine-serine-glycine-leucine-valine-proline-arginine-glycine-serine-proline sequence (SEQ ID NO: 99) at the N-terminus; and
- (h) having a glycine-serine-proline sequence at the N-terminus.

169. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide truncated analog under conditions that provide for expression of the truncated analog *in vivo*, such truncated analog, capable of modulating body weight, having an amino acid sequence of SEQ ID NOS: 2 or 4, wherein the truncated analog is selected from the group (according to the numbering of SEQ ID NO: 4) consisting of polypeptides wherein:

- (a) one or more residues between positions 121 and 128 are deleted;
- (b) residues 1-116 are deleted;
- (c) residues 1-21 and 54 to 167 are deleted;
- (d) residues 1-60 and 117 to 167 are deleted;
- (e) residues 1-60 are deleted;
- (f) residues 1-53 are deleted;
- (g) an analog of subpart (a) wherein residues 1-21 are deleted; and
- (h) an analog of subpart (a) through (g) having an N-terminal amino acid or

amino acid sequence selected from the group consisting of:

- (1) methionine,
- (2) a glycine-serine-histidine-methionine sequence (SEQ ID NO: 38),
- (3) a methionine-glycine-serine-serine-histidine-histidine-histidine-histidine-histidine-histidine-serine-serine-glycine-leucine-valine-proline-arginine-glycine-serine-histidine-methionine sequence (SEQ ID NO: 98),
- (4) a leucine-glutamic acid-lysine-arginine-glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 26),
- (5) a glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 27),
- (6) a leucine-glutamic acid-lysine-arginine sequence (SEQ ID NO: 28),
- (7) a methionine-glycine-serine-serine-histidine-histidine-histidine-histidine-histidine-serine-serine-glycine-leucine-valine-proline-arginine-glycine-serine-proline sequence (SEQ ID NO: 99), and

(8) a glycine-serine-proline sequence.

170. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide analog under conditions that provide for expression of the polypeptide analog *in vivo*, such polypeptide analog, capable of modulating body weight, comprising amino acids 22-166 of SEQ ID NOS: 5 or 6 wherein the polypeptide analog is selected from the group consisting of polypeptides wherein:

- (a) the serine residue at position 52 is substituted with glycine, alanine, valine, cysteine, methionine, or threonine;
- (b) the serine residue at position 97 is substituted with glycine, alanine, valine, cysteine, methionine, or threonine; and
- (c) the arginine residue at position number 91 is substituted with asparagine, lysine, histidine, glutamine, glutamic acid, aspartic acid, serine, threonine, methionine, or cysteine.

171. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide analog under conditions that provide for expression of the polypeptide analog *in vivo*, such polypeptide analog, capable of modulating body weight, having an amino acid sequence of SEQ ID NOS: 5 or 6, wherein the polypeptide analog is selected from the group consisting of polypeptides wherein:

- (a) one or more aspartic acid residues is substituted with glutamic acid;
- (b) one or more isoleucine residues is substituted with leucine;
- (c) one or more glycine or valine residues is substituted with alanine;
- (d) one or more arginine residues is substituted with histidine;
- (e) one or more tyrosine or phenylalanine residues is substituted with tryptophan;
- (f) one or more of residues 120 through 127 (according to the numbering of

SEQ ID No:6) is substituted with glycine or alanine; and

(g) one or more residues at positions 53 through 59 or 117 through 165 (according to the number of SEQ ID NO: 6) is substituted with lysine, glutamic acid, cysteine, or proline.

172. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide truncated analog under conditions that provide for expression of the truncated analog *in vivo*, such truncated analog, capable of modulating body weight, having an amino acid sequence of SEQ ID NOS: 5 or 6, wherein the truncated analog is selected from the group (according to the numbering of SEQ ID NO: 6) consisting of polypeptides wherein:

- (a) one or more residues between positions 120 and 127 are deleted;
- (b) residues 1-115 are deleted;
- (c) residues 1-21 and 53 to 166 are deleted;
- (d) residues 1-59 and 116 to 166 are deleted;
- (e) residues 1-59 are deleted;
- (f) residues 1-52 are deleted;
- (g) an analog of subpart (a) wherein residues 1-21 are deleted; and
- (h) an analog of subpart (a) through (g) having an N-terminal amino acid or amino acid sequence selected from the group consisting of:
 - (1) methionine,
 - (2) a glycine-serine-histidine-methionine sequence (SEQ ID NO: 38),
 - (3) a methionine-glycine-serine-serine-histidine-histidine-histidine-histidine-histidine-serine-glycine-leucine-valine-proline-arginine-glycine-serine-histidine-methionine sequence (SEQ ID NO: 98),
 - (4) a leucine-glutamic acid-lysine-arginine-glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 26),
 - (5) a glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 27),

- (6) a leucine-glutamic acid-lysine-arginine sequence (SEQ ID NO: 28),
- (7) a methionine-glycine-serine-serine-histidine-histidine-histidine-histidine-histidine-serine-serine-glycine-leucine-valine-proline-arginine-glycine-serine-proline sequence (SEQ ID NO: 99), and
- (8) a glycine-serine-proline sequence.

173. A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide analog under conditions that provide for expression of the polypeptide analog *in vivo*, such polypeptide analog, capable of modulating body weight, comprising amino acids 22-166 of SEQ ID NOS: 5 or 6, wherein one or more amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162, and 165 (according to the numbering of SEQ ID NO: 6) is substituted with another amino acid and wherein the polypeptide analog is selected from the group consisting of polypeptides:

- (a) having a methione at the N-terminus;
- (b) having a glycine-serine-histidine-methionine sequence (SEQ ID NO: 38) at the N-terminus;
- (c) having a methionine-glycine-serine-serine-histidine-histidine-histidine-histidine-histidine-serine-serine-glycine-leucine-valine-proline-arginine-glycine-serine-histidine-methionine sequence (SEQ ID NO: 98) at the N-terminus;
- (d) having a leucine-glutamic acid-lysine-arginine-glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 26) at the N-terminus;
- (e) having a glutamic acid-alanine-glutamic acid-alanine sequence (SEQ ID NO: 27) at the N-terminus;
- (f) having a leucine-glutamic acid-lysine-arginine sequence (SEQ ID NO: 28) at the N-terminus;
- (g) having a methionine-glycine-serine-serine-histidine-histidine-histidine-